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EXAMINER	
DOTE, JANIS L	
ART UNIT	**PAPER NUMBER**
1756	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/786,050	OGAWA ET AL.	
	Examiner	Art Unit	
	Janis L. Dote	1756	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 April 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5 and 7-9* is/are rejected.

7)☒ Claim(s) *6* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3/11/04;4/13/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. The disclosure is objected to because of the following informalities:

The use of trademarks, e.g., Henschel mixer [sic: HENSCHEL MIXER] at page 71, lines 7-8, has been noted in this application. The trademarks should be capitalized wherever they appear and be accompanied by the generic terminology. This example is not exhaustive. Applicants should review the entire specification for compliance

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

Appropriate correction is required.

2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

In claim 9, the recitation "a metal aromatic hydroxycarboxylate" lacks antecedent basis in the specification. See page 38, line 10, to page 39, line 10, of the specification, which discloses a particular "metal compound of an aromatic

hydroxycarboxylic acid" represented by the formula disclosed at pages 38-39. The recited "metal aromatic hydroxycarboxylate" in claim 9 is broader than the disclosed compound because it encompasses compounds that are not represented by the formula disclosed at pages 38-39.

3. The examiner notes that the term "average circularity" is defined at page 48, lines 1-13, as the "value determined by dividing the sum of measured circularity values of total particles having equivalent circle diameters of 3 μm to 400 μm, by the number of total particles," where the circularity is defined as L_o/L where "L_o represents a circumferential length of a circle having an area identical to that of a projected particle image, and L represents a circumferential length of the projected particle image processed at an image processing resolution of 512 × 512 (0.3 μm × 0.3 μm pixel)."

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 3 and 6-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 3 is indefinite in the phrases "R_1 denotes one of an alkylene and an alkenylene group," "R_2 denotes one of an alkylene and an alkenylene group," "R_3 denotes one of an alkylene and an alkenylene group," "R_4 denotes one of an alkylene and an alkenylene group," "R_5 denotes one of an alkylene and an alkenylene group," and "R_6 denotes one of an alkylene and an alkenylene group" (emphasis added). It is not clear whether the R groups in the respective compounds are required to comprise both an alkylene group and an alkenylene group or either an alkylene group or an alkenylene group.

Claim 3 is further indefinite in the phrase "n=1 when m=2, and M denotes one of a hydrogen, an alkali metal ion, an ammonium ion and an organic ammonium ion when n=1" (emphasis added). It is not clear how M can be a mixture of all four groups because when m=2, M can be at most a mixture of two of the named ions.

Claim 6 is indefinite in the phrase "a flow type particle image analyzer" (emphasis added) because it is not clear whether the phrase "a flow type particle image analyzer" refers to a

flow particle image analyzer or to an image analyzer that has some property of a flow particle image analyzer.

Claim 8 is indefinite in the phrase "structure containing oxyalkylene ether of a novolak type phenolic resin" (emphasis added) because it is not clear whether the term "novolak type phenolic resin" refers to a novolak phenolic resin or a phenolic resin that has some property of a novolak phenolic resin.

6. In the interest of compact prosecution, the examiner has interpreted the claim language in claim 3 as requiring that the respective R groups are either an alkylene or an alkenylene as defined in claim 3. Antecedent basis for examiner's interpretations is found in the compounds disclosed at pages 17-18 of the instant specification. Rejections based on these interpretations are set forth infra.

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f), or (g) prior art under 35 U.S.C. 103(a).

9. Claims 1-3, 7, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,677,092 B2 (Arai), as evidenced by US 6,379,855 B1 (Hayashi) combined with WO 03/073171 A1 (Kishiki), as evidenced by US 2004/0241565 A1 (US'565) and the American Chemical Society (ACS) STN File Registry Number 14481-26-6. The US published application, filed under 35 U.S.C. 371, is the national stage of the WO application of Kishiki, and therefore must have been an accurate English-language translation of the WO application of Kishiki. Therefore, the US published application is used merely as the English-language translation of the WO application. See US'565 for cites.

Arai discloses a magnetic toner comprising magnetic toner particles that comprise magnetic iron oxide particles and a binder resin and hydrophobic silica particles. Col. 8, lines 1-8; col. 16, lines 21-24, and 49-52; col. 23, line 62, to

col. 24, line 56; and Table 4 at col. 25, example 1. The magnetic toner has a saturation magnetization of 32.2 emu/g and a residual (i.e., remanent) magnetization of 8.72 emu/g in a magnetic field of 10 KOe. Table 4, example 1. The saturation magnetization of 32.2 emu/g, i.e., 32.2 Am^2/g, together with the residual magnetization of 8.72 emu/g, i.e., 8.72 Am^2/g, in a magnetic field of 10 KOe, i.e., 795.8 kA/m, meet the magnetization limitations recited in instant claim 1. See Hayashi, col. 7, lines 30-35, equating 1 emu/g to 1 Am^2/g, and a magnetic field of 795.8 kA/m to 10 KOe.

Arai does not exemplify a magnetic toner comprising a polyester binder resin as recited in the instant claims. However, Arai teaches that the type of binder resin in the toner is not particularly limited, and that the binder resin can be a polyester resin. Col. 5, lines 45-50.

Kishiki discloses a polyester toner binder resin that is obtained by using a titanium chelate compound as a catalyst. The polyester resin is obtained by reacting a phenol novolak-PO (i.e., propylene oxide) adduct with a dicarboxylic acid in the presence of potassium titanyl oxalate as the condensation catalyst. US'565, paragraph 0049, line 7-8; and paragraphs 0268-0269, example 7, toner binder TB7. Potassium titanyl oxalate meets the compositional limitation recited in

instant claims 1 and 2, and meets the compositional limitation of formula VII recited in instant claims 3 and 7, when n=2, and M is potassium. See the ACS STN File Registry Number 14481-26-6. The phenol novolak-propylene oxide adduct is within the compositional limitation of the "oxyalkylene ether of a novolak-type phenolic resin" recited in instant claim 8. According to Kishiki, when a toner comprises the toner binder TB7, the toner is capable of maintaining good low temperature fixability and hot offset resistance. The toner binder TB7 prevents image quality deterioration even under low-temperature and low-humidity conditions. US'565, paragraph 0004; and Table 2 at page 14, example 7. Kishiki further discloses that there was "good" pigment dispersibility in the toner. The toner provides good quality images without staining the photoconductor. Table 2, example 7. Kishiki discloses that the pigment can be a magnetic powder. US'565, paragraph 0136.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Kishiki, to use the Kishiki polyester toner binder resin TB7 as the binder resin in the magnetic toner disclosed by Araki, because that person would have had a reasonable expectation of successfully obtaining a magnetic toner that is capable of maintaining good

low temperature fixability and hot offset resistance, and that provides good quality images even under low-temperature and low-humidity conditions without staining the photoconductor.

10. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arai, as evidenced by Hayashi, combined with US 2003/0158372 A1 (Shirai), as evidenced by the ACS STN File Registry Number 36673-16-2.

Arai, as evidenced by Hayashi, discloses a magnetic toner as described in paragraph 9 above, which is incorporated herein by reference.

Arai does not exemplify a magnetic toner comprising a polyester binder resin as recited in the instant claims. However, Arai teaches that the type of binder resin in the toner is not particularly limited, and that the binder resin can be a polyester resin. Col. 5, lines 45-50.

Shirai discloses a polyester toner binder resin that is obtained by using a titanium chelate compound as a catalyst. The polyester resin is obtained by reacting a diol compound and a dicarboxylic acid in the presence of titanium diisopropylate bis(triethanolaminate) (AI) as the condensation catalyst. Shirai, Tables 1 and 2 at page 5, and Table 3 at page 6, example A1. "Titanium diisopropylate bis(triethanolaminate)" is

another name for titanium diisopropylate bis(triethanolamine). Compare the chemical formula of titanium diisopropylate bis(triethanolamine) in the ACS STN File Registry Number 36673-16-2 and the chemical formula of titanium diisopropylate bis(triethanolaminate) in paragraph 0029 of Shirai. As shown in the ACS STN File Registry Number 36673-16-2, titanium diisopropylate bis(triethanolamine) meets the compositional limitation of the Ti chelate compound recited in instant claims 1 and 2. Triethanolamine also meets the diol ligand limitation recited in instant claim 2. According to Shirai, a polyester resin composition obtained by using the Shirai condensation catalyst, which has very high reaction activity and excellent hydrolytic resistance, has "a reduced amount of low-molecular components, so that the use of such a resin composition as a resin binder dramatically improves the durability of the toner." Shirai, paragraph 0019.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Shirai, to use the polyester toner binder resin in example A1 of Shirai as the binder resin in the magnetic toner disclosed by Araki, because that person would have had a reasonable expectation of successfully obtaining a magnetic toner having improved durability as taught by Shirai.

11. Claims 1-3 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arai, as evidenced by Hayashi, combined with Shirai, as evidenced by applicants' admission in the instant specification at page 5, lines 14-25.

Arai, as evidenced by Hayashi, discloses a magnetic toner as described in paragraph 9 above, which is incorporated herein by reference.

Arai does not exemplify a magnetic toner comprising a polyester binder resin as recited in the instant claims. However, Arai teaches that the type of binder resin in the toner is not particularly limited, and that the binder resin can be a polyester resin. Col. 5, lines 45-50.

Shirai discloses a polyester toner binder resin that is obtained by using a titanium compound as a catalyst. The polyester resin is obtained by reacting a diol compound and a dicarboxylic acid in the presence of tetraoctyltitanate (BIII) as the condensation catalyst. Shirai, Tables 1 and 2 at page 5, and Table 4 at pages 6-7, example B5. According to Shirai, a polyester resin composition obtained by using the Shirai condensation catalyst, which has very high reaction activity and excellent hydrolytic resistance, has a reduced amount of low-molecular components, so that the use of such a resin

composition as a resin binder dramatically improves the durability of the toner." Shirai, paragraph 0019.

Instant claims 1-3 and 7 are written in product-by-process format. The Shirai polyester resin in example B5 is not obtained by a titanium chelate condensation catalyst as recited in the instant claims. However, the instant specification at page 5, lines 14-25, discloses that "a resin having a polyester component using a Ti chelate compound as a catalyst is considered to uniformly contain a Ti compound. However, whether the Ti compound is present as a Ti chelate compound or is changed by a polymerization reaction into a compound other than a chelate compound has not been confirmed yet . . . Therefore, a residual substance of the polymerization catalyst in the resin is expressed as the 'Ti compound.'" In other words, the chemical composition of the "Ti compound" is not known. As discussed above, the Shirai polyester resin is obtained by using tetraoctyltitanate as the condensation catalyst. The Shirai polyester resin meets the polyester compositional limitation recited in the instant claims and is used for the same purpose as applicants as a toner binder resin. Accordingly, the Shirai polyester resin appears to be the same or substantially the same as the polyester resin obtained by using the Ti chelate recited in the instant claims. The burden is on applicants to prove

otherwise. In re Marosi, 218 USPQ 289 (Fed. Cir. 1983); In re Thorpe, 227 USPQ 964 (Fed. Cir. 1985); MPEP 2113.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Shirai, to use the polyester toner binder resin in example B5 of Shirai as the binder resin in the magnetic toner disclosed by Araki, because that person would have had a reasonable expectation of successfully obtaining a magnetic toner having improved durability as taught by Shirai.

12. Claims 1-3, 7, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 4,857,432 (Tanikawa'432), as evidenced by Hayashi, combined with Kishiki, as evidenced by US'565 and the ACS STN File Registry Number 14481-26-6. See US'565 for cites.

Tanikawa'432 discloses a magnetic toner comprising magnetic toner particles that comprise magnetic iron oxide particles, a binder resin, and a particular charge control agent, and hydrophobic silica particles. Example 1 at col. 14; and Table 2 at col. 17, example 1. The magnetic toner has a saturation magnetization of 30.3 emu/g and a residual (i.e., remanent) magnetization of 5.9 emu/g in a magnetic field of 10 KOe. Table 2, example 1. The saturation magnetization of 30.3 emu/g,

i.e., 30.3 Am^2/g, together with the residual magnetization of 5.9 emu/g, i.e., 5.9 Am^2/g, in a magnetic field of 10 KOe, i.e., 795.8 kA/m, meet the magnetization limitations recited in instant claim 1. See Hayashi, col. 7, lines 30-35, equating 1 emu/g to 1 Am^2/g, and a magnetic field of 795.8 kA/m to 10 KOe.

Tanikawa'432 does not exemplify a magnetic toner comprising a polyester binder resin as recited in the instant claims. However, Tanikawa'432 teaches that the binder resin in the toner can be a polyester resin. Col. 11, line 1.

Kishiki discloses a polyester toner binder resin that is obtained by using a titanium chelate compound as a catalyst that meets the polyester limitations recited in instant claims 1-3 and 7. The discussions of Kishiki and the ACS STN File Registry Number 14481-26-6 in paragraph 9 above are incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Kishiki, to use the Kishiki polyester toner binder resin TB7 as the binder resin in the magnetic toner disclosed by Tanikawa'432, because that person would have had a reasonable expectation of successfully obtaining a magnetic toner that is capable of maintaining good low temperature fixability and hot offset resistance, and that

provides good quality images even under low-temperature and low-humidity conditions without staining the photoconductor.

13. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanikawa'432, as evidenced by Hayashi, combined with Shirai, as evidenced by the ACS STN File Registry Number 36673-16-2.

Tanikawa'432, as evidenced by Hayashi, discloses a magnetic toner as described in paragraph 12 above, which is incorporated herein by reference.

Tanikawa'432 does not exemplify a magnetic toner comprising a polyester binder resin as recited in the instant claims. However, Tanikawa'432 teaches that the binder resin in the toner can be a polyester resin. Col. 11, line 1.

Shirai teaches a polyester toner binder resin that is obtained by using a titanium chelate compound as a catalyst that meets the polyester resin limitations recited in instant claims 1 and 2. The discussions of Shirai and the ACS STN File Registry Number 36673-16-2 in paragraph 10 above are incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Shirai, to use the polyester toner binder resin in example A1 of Shirai as the

binder resin in the magnetic toner disclosed by Tanikawa'432, because that person would have had a reasonable expectation of successfully obtaining a magnetic toner having improved durability as taught by Shirai.

14. Claims 1-3 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanikawa'432, as evidenced by Hayashi, combined with Shirai, as evidenced by applicants' admission in the instant specification at page 5, lines 14-25.

Tanikawa'432, as evidenced by Hayashi, discloses a magnetic toner as described in paragraph 12 above, which is incorporated herein by reference.

Tanikawa'432 does not exemplify a magnetic toner comprising a polyester binder resin as recited in the instant claims. However, Tanikawa'432 teaches that the binder resin in the toner can be a polyester resin. Col. 11, line 1.

Shirai teaches the use of a polyester toner binder resin that is obtained by using a titanium compound as a catalyst as a toner binder resin. According to Shirai, when a toner comprises such a polyester resin, the toner has improved durability. The discussions of Shirai and applicants' admission in the instant specification in paragraph 11 above are incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Shirai, to use the polyester toner binder resin in example B5 of Shirai as the binder resin in the magnetic toner disclosed by Tanikawa'432, because that person would have had a reasonable expectation of successfully obtaining a magnetic toner having improved durability as taught by Shirai.

15. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanikawa'438, as evidenced by Hayashi, combined with Kishiki, as evidenced by US'565 and the ACS STN File Registry Number 14481-26-6, as applied to claim 1 above, further combined with US 6,218,065 B1 (Tanikawa'065). See US'565 for cites.

Tanakawa'438, as evidenced by Hayashi, combined with Kishiki, as evidenced by US'565 and the ACS STN File Registry Number 14481-26-6, renders obvious a magnetic toner as described in paragraph 12 above, which is incorporated herein by reference.

Tanakawa'438 does not exemplify a magnetic toner comprising magnetic iron oxide particles comprising 0.1 to 2.0% by weight of an Si element as recited in instant claim 4.

Tanikawa'065 teaches that it is most preferred that the magnetic iron oxide used in magnetic toners contain a "different element" selected from the group consisting of magnesium, aluminum, silicon, phosphorus, and zirconium. Col. 48, lines 16-19. Tanikawa'065 teaches that the "different element" may be: introduced into the crystal lattice of the iron oxide; incorporated as an oxide thereof in the iron oxide; or present as an oxide or a hydroxide on the surface of the iron oxide particles. Col. 48, lines 20-23. According to Tanikawa'065, such a magnetic iron oxide containing such a different element exhibits a good affinity with and very good dispersibility in the toner binder resin, which can be a polyester binder resin. Col. 46, lines 29-31, and col. 48, lines 32-34. Tanikawa'065 further teaches that the "different element" is preferably present at 0.2 to 5 wt% based on the iron element. If the amount is below 0.05 wt%, the "addition effect of the different element is scarce, thus failing to achieve good dispersibility and uniformity of chargeability." If the amount is greater than 10 wt%, the "charge liberation is liable to be excessive to cause insufficient chargeability, thus resulting in a lower image density and an increased fog." Col. 49, lines 1-8. Thus, the prior art reference recognizes that the amount of the "different element" in the magnetic iron oxide particles is a

result-effective variable. The variation of a result-effective variable is presumably within the skill of the ordinary worker in the art. Tanikawa'065 exemplifies magnetic iron oxide particles comprising Si in an amount of 2 wt% or 0.5 wt% based on the iron element of the particles. See Table 3 at col. 59, magnetic material (i) and (ii). The amounts of 2 wt% and 0.5 wt% are within the range of 0.1 to 2 wt% recited in instant claim 4.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Tanikawa'065, to incorporate the element Si in the magnetic iron oxide particles as taught by Tanikawa'065 in the magnetic toner disclosed by Tanikawa'438, such that the resultant magnetic iron oxide particles comprise Si in an amount, such as 0.5 or 2 wt% based on the iron content, that is within the amount recited in instant claim 4, and to use the resultant magnetic iron oxide particles in the magnetic toner rendered obvious over the combined teachings of Tanakawa'438, as evidenced by Hayashi, and Kishiki, as evidenced by US'565 and the ACS STN File Registry Number 14481-26-6. That person would have had a reasonable expectation of successfully obtaining a magnetic toner having improved dispersibility of the magnetic iron oxide particles in

the binder resin, and improved uniformity of chargeability as taught by Tanikawa'065.

16. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanikawa'438, as evidenced by Hayashi, combined with Shirai, as evidenced by the ACS STN File Registry Number 36673-16-2, as applied to claim 1 above, further combined with Tanikawa'065.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanikawa'438, as evidenced by Hayashi, combined with Shirai, as evidenced by applicants' admission in the instant specification at page 5, lines 14-25, as applied to claim 1 above, further combined with Tanikawa'065.

Tanakawa'438, as evidenced by Hayashi, combined with Shirai, as evidenced by the ACS STN File Registry Number 36673-16-2, renders obvious a magnetic toner as described in paragraph 13 above, which is incorporated herein by reference.

Tanakawa'438, as evidenced by Hayashi, combined with Shirai, as evidenced by applicants' admission in the instant specification at page 5, lines 14-15, renders obvious a magnetic toner as described in paragraph 14 above, which is incorporated herein by reference.

Tanakawa'438 does not exemplify a magnetic toner comprising magnetic iron oxide particles comprising 0.1 to 2.0% by weight of an Si element as recited in instant claim 4.

Tanikawa'065 teaches the use of magnetic iron oxide particles comprising Si in magnetic toners. The discussion of Tanikawa'065 in paragraph 15 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Tanikawa'065, to incorporate the element Si in the magnetic iron oxide particles as taught by Tanikawa'065 in the magnetic toner disclosed by Tanikawa'438, such that the resultant magnetic iron oxide particles comprise Si in an amount, such as 0.5 or 2 wt% based on the iron content, that is within the amount recited in instant claim 4, and to use the resultant magnetic iron oxide particles in the magnetic toner rendered obvious over the combined teachings of Tanakawa'438, as evidenced by Hayashi, and Shirai, as evidenced by the ACS STN File Registry Number 36673-16-2, or by applicants' admission. That person would have had a reasonable expectation of successfully obtaining a magnetic toner having improved dispersibility of the magnetic iron oxide particles in the binder resin, and improved uniformity of chargeability as taught by Tanikawa'065.

17. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Arai, as evidenced by Hayashi, combined with Kishiki, as evidenced by US'565 and the ACS STN File Registry Number 14481-26-6, as applied to claim 1 above, further combined with US 6,197,470 B1 (Tamura). See US'565 for cites.

Arai, as evidenced by Hayashi, combined with Kishiki, as evidenced by US'565 and the ACS STN File Registry Number 14481-26-6, renders obvious a magnetic toner as described in paragraph 9 above, which is incorporated herein by reference.

Arai does not exemplify a magnetic toner comprising a hydrophobic silica as recited in instant claim 5.

Tamura teaches hydrophobic silica particles that are treated with hexamethyldisilazane and a dimethylsilicone oil. Col. 22, lines 35-56, hydrophobic fine silica powder A; and Table 1 at col. 25, treated silica A. The Tamura hydrophobic silica powder A has particular hydrophobic properties. Col. 2, lines 34-49; and Table 2 at col. 25, treated silica A. According to Tamura, when the Tamura hydrophobic silica powder A is externally added to a toner, the toner can keep smeared images from occurring even in an environment of high temperature and high humidity. The toner has good transfer efficiency and does not cause melt abrasion of the photosensitive drum. Col. 2, lines 10-22.

It would have been obvious for a person having ordinary skill in the art to use the Tamura hydrophobic silica powder A as the externally added hydrophobic silica in the magnetic toner rendered obvious over the combined teachings of Arai, as evidenced by Hayashi, and Kishiki, as evidenced by US'565 and the ACS STN File Registry Number 14481-26-6. That person would have had a reasonable expectation of successfully obtaining a magnetic toner that has good transfer efficiency, that does not cause melt abrasion of the photosensitive drums, and that provides images without smearing even in an environment of high temperature and high humidity, as taught by Tamura.

18. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Arai, as evidenced by Hayashi, combined with Shirai, as evidenced by the ACS STN File Registry Number 36673-16-2, as applied to claim 1 above, further combined with Tamura.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Arai, as evidenced by Hayashi, combined with Shirai, as evidenced by applicants' admission in the instant specification at page 5, lines 14-25, as applied to claim 1 above, further combined with Tamura.

Arai, as evidenced by Hayashi, combined with Shirai, as evidenced by the ACS STN File Registry Number 36673-16-2,

renders obvious a magnetic toner as described in paragraph 10 above, which is incorporated herein by reference.

Arai, as evidenced by Hayashi, combined with Shirai, as evidenced by applicants' admission in the instant specification at page 5, lines 14-15, renders obvious a magnetic toner as described in paragraph 11 above, which is incorporated herein by reference.

Arai does not exemplify a magnetic toner comprising a hydrophobic silica as recited in instant claim 5.

Tamura teaches hydrophobic silica particles that are treated with hexamethyldisilazane and a dimethylsilicone oil. The discussion of Tamura in paragraph 17 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art to use the Tamura hydrophobic silica powder A as the externally added hydrophobic silica in the magnetic toner rendered obvious over the combined teachings of Arai, as evidenced by Hayashi, and Shirai, as evidenced by the ACS STN File Registry Number 36673-16-2, or by applicants' admission. That person would have had a reasonable expectation of successfully obtaining a magnetic toner that has good transfer efficiency, that does not cause melt abrasion of the photosensitive drums, and that provides images without smearing

even in an environment of high temperature and high humidity, as taught by Tamura.

19. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanikawa'438, as evidenced by Hayashi, combined with Kishiki, as evidenced by US'565 and the ACS STN File Registry Number 14481-26-6, as applied to claim 1 above, further combined with Tamura. See US'565 for cites.

Tanikawa'438, as evidenced by Hayashi, combined with Kishiki, as evidenced by US'565 and the ACS STN File Registry Number 14481-26-6, renders obvious a magnetic toner as described in paragraph 12 above, which is incorporated herein by reference.

Tanikawa'438 does not exemplify a magnetic toner comprising a hydrophobic silica as recited in instant claim 5.

Tamura teaches hydrophobic silica particles that are treated with hexamethyldisilazane and a dimethylsilicone oil. The discussion of Tamura in paragraph 17 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art to use the Tamura hydrophobic silica powder A as the externally added hydrophobic silica in the magnetic toner rendered obvious over the combined teachings of Tanikawa'438, as

evidenced by Hayashi, and Kishiki, as evidenced by US'565 and the ACS STN File Registry Number 14481-26-6. That person would have had a reasonable expectation of successfully obtaining a magnetic toner that has good transfer efficiency, that does not cause melt abrasion of the photosensitive drums, and that provides images without smearing even in an environment of high temperature and high humidity, as taught by Tamura.

20. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanikawa'438, as evidenced by Hayashi, combined with Shirai, as evidenced by the ACS STN File Registry Number 36673-16-2, as applied to claim 1 above, further combined with Tamura.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanikawa'438, as evidenced by Hayashi, combined with Shirai, as evidenced by applicants' admission in the instant specification at page 5, lines 14-25, as applied to claim 1 above, further combined with Tamura.

Tanikawa'438, as evidenced by Hayashi, combined with Shirai, as evidenced by the ACS STN File Registry Number 36673-16-2, renders obvious a magnetic toner as described in paragraph 13 above, which is incorporated herein by reference.

Tanikawa'438, as evidenced by Hayashi, combined with Shirai, as evidenced by applicants' admission in the instant specification at page 5, lines 14-15, renders obvious a magnetic toner as described in paragraph 14 above, which is incorporated herein by reference.

Tanikawa'438 does not exemplify a magnetic toner comprising a hydrophobic silica as recited in instant claim 5.

Tamura teaches hydrophobic silica particles that are treated with hexamethyldisilazane and a dimethylsilicone oil. The discussion of Tamura in paragraph 17 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art to use the Tamura hydrophobic silica powder A as the externally added hydrophobic silica in the magnetic toner rendered obvious over the combined teachings of Tanikawa'438, as evidenced by Hayashi, and Shirai, as evidenced by the ACS STN File Registry Number 36673-16-2, or by applicants' admission. That person would have had a reasonable expectation of successfully obtaining a magnetic toner that has good transfer efficiency, that does not cause melt abrasion of the photosensitive drums, and that provides images without smearing even in an environment of high temperature and high humidity, as taught by Tamura.

21. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Arai, as evidenced by Hayashi, combined with Kishiki, as evidenced by US'565 and the ACS STN File Registry Number 14481-26-6, as applied to claim 1 above, further combined with Tanikawa'065. See US'565 for cites.

Arai, as evidenced by Hayashi, combined with Kishiki, as evidenced by US'565 and the ACS STN File Registry Number 14481-26-6, renders obvious a magnetic toner as described in paragraph 9 above, which is incorporated herein by reference.

Arai does not exemplify a magnetic toner comprising a metal aromatic hydroxycarboxylate as recited in instant claim 9. However, Arai teaches that the magnetic toner can comprise a charge control agent to improve the charging level, charge rising property, and fluidity of the toner. Col. 15, lines 16-20.

Tanikawa'065 teaches organic zirconium complexes of aromatic hydroxycarboxylic acids as toner charge controlling agents. Col. 3, lines 15-25; and cols. 13-24, compounds (38) to (82). The Tanikawa'065 zirconium complexes meet the "metal aromatic hydroxycarboxylate" limitation recited in instant claim 9. According to Tanikawa'065, toners comprising said charge controlling compounds have negative triboelectric

chargeability, and stably provide high quality images "even when used in a low humidity environment or in a high humidity environment and not causing image defects with lapse of time." The toner is "less liable to result in deteriorated toner even when used in a cartridge-type developing device of either a replenishment type or a use-up type." The toner also exhibits excellent developing performance and provides "developed images faithful to electrostatic images even in a long term of continuous image formation." Col. 2, lines 1-18.

It would have been obvious for a person having ordinary skill in the art to use the Tanikawa'065 zirconium complex of an aromatic hydroxycarboxylic acid as the charge control agent in the magnetic toner rendered obvious over the combined teachings of Arai, as evidenced by Hayashi, and Kishiki, as evidenced by US'565 and the ACS STN File Registry Number 14481-26-6. That person would have had a reasonable expectation of successfully obtaining a negative triboelectric chargeable magnetic toner having the advantages disclosed by Tanikawa'065.

22. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Arai, as evidenced by Hayashi, combined with Shirai, as evidenced by the ACS STN File Registry Number 36673-

16-2, as applied to claim 1 above, further combined with Tanikawa'065.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Arai, as evidenced by Hayashi, combined with Shirai, as evidenced by applicants' admission in the instant specification at page 5, lines 14-25, as applied to claim 1 above, further combined with Tanikawa'069.

Arai, as evidenced by Hayashi, combined with Shirai, as evidenced by the ACS STN File Registry Number 36673-16-2, renders obvious a magnetic toner as described in paragraph 10 above, which is incorporated herein by reference.

Arai, as evidenced by Hayashi, combined with Shirai, as evidenced by applicants' admission in the instant specification at page 5, lines 14-15, renders obvious a magnetic toner as described in paragraph 11 above, which is incorporated herein by reference.

Arai does not exemplify a magnetic toner comprising a metal aromatic hydroxycarboxylate as recited in instant claim 9. However, Arai teaches that the magnetic toner can comprise a charge control agent to improve the charging level, charge rising property, and fluidity of the toner. Col. 15, lines 16-20.

Tanikawa'065 teaches organic zirconium complexes of aromatic hydroxycarboxylic acids as toner charge controlling agents that meet the "metal aromatic hydroxycarboxylate" limitation recited in instant claim 9. The discussion of Tanikawa'065 in paragraph 21 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art to use the Tanikawa'065 zirconium complex of an aromatic hydroxycarboxylic acid as the charge control agent in the magnetic toner rendered obvious over the combined teachings of Arai, as evidenced by Hayashi, and Shirai, as evidenced by the ACS STN File Registry Number 366673-16-2, or by applicants' admission. That person would have had a reasonable expectation of successfully obtaining a negative triboelectric chargeable magnetic toner having the advantages disclosed by Tanikawa'065.

23. Claim 6 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art of record does not teach or suggest a magnetic toner having the magnetizations and comprising the polyester resin recited in instant claim 1, and further

comprising magnetic toner particles having an average circularity of particles having equivalent circle diameters of 3 μm or more to 400 μm or less of 0.930 to less than 0.970, as recited in instant claim 6. The average circularity recited in instant claim 6 is defined in the instant specification at page 48, lines 1-13, as the "value determined by dividing the sum of measured circularity values of total particles having equivalent circle diameters of 3 μm to 400 μm, by the number of total particles," where the circularity is defined as L_o/L where "L_o represents a circumferential length of a circle having an area identical to that of a projected particle image, and L represents a circumferential length of the projected particle image processed at an image processing resolution of 512 × 512 (0.3 μm × 0.3 μm pixel)."

24. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janis L. Dote whose telephone number is (571) 272-1382. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Mark Huff, can be reached on (571) 272-1385. The central fax phone number is (703) 872-9306.

Any inquiry regarding papers not received regarding this communication or earlier communications should be directed to Supervisory Application Examiner Ms. Claudia Sullivan, whose telephone number is (571) 272-1052.

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(PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Mar. 16, 2005

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